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**Title: Local Defect Detection in Bearings in the Presence of Heavy-Tailed Noise and Spectral Overlapping of Informative and Non-Informative Impulses**

Abstract: The extraction of the informative frequency band for the signal with heavy-tailed noise is introduced to detect the local damage. The algorithm is used for the vibration signal from a bearing installed in the ore crusher. From a signal processing point of view, this is related to the detection and recognition of cyclic and non-cyclic impulsive components in the signal. It is assumed that the non-periodic impulses have an amplitude significantly higher than the cyclic impulses - usually wholly hidden in the non-Gaussian noise - what makes the diagnosis difficult. As both components are non-Gaussian, a periodicity detector can be used as an alternative to the impulsiveness criteria. In this paper, the proposed informative frequency band selectors utilize the dependency measures, i.e. Pearson, Spearman, and Kendall correlation. These dependency measures are applied in the time-frequency domain of the signal to find similarities between sub-signals associated with frequency bands. It will also be explained how spectral overlapping of informative and non-informative impulsive components will affect diagnostic procedures.